The Strata/Machinic Assemblage and Architecture

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Abstract

Much of the literature exploring the intersection between Deleuzo-Guattarian philosophy and architecture have focused on abstract theory, experimental projects and practices at the margins of the profession. But, one may ask, what of the mainstream, commercial practices that produce the offices, housing, shops, schools and community buildings that we see and engage with in our day-to-day lives? What of the everyday design decisions made by professional architects and technicians sitting at their desks and drawing boards? Are these to be excluded from architecture's engagement with Deleuzo-Guattarian philosophy? As I will show in this paper, Deleuze and Guattari's proposals for the strata and the machinic assemblage are drawn from their underlying attempt to expand Hjelmslev's planar composition from a tool used to analyse language to a conceptual framework used to analyse the formation and evolution of *all* things. There is nothing within the conceptual framework of the strata/machinic assemblage to suggest, therefore, that they should not be used to analyse such practices. With this in mind, this article considers how these concepts can be translated through and help provide new insight into a real-world design sequence taken from mainstream, commercial architectural practice. In doing so it will show how such practices can offer Deleuzo-Guattarian scholars a more nuanced insight into this conceptual framework and the concepts that form it.

Keywords: strata; assemblage; Deleuze and Guattari; Hjelmslev; architecture; design

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I. Which Architecture?

Architecture has a long and fruitful relationship with Deleuzo-Guattarian philosophy (Jobst 2013). In architectural theory, concepts like *becoming*, *immanence* and the *assemblage* have been used to reconceptualise buildings (Smith and Ballantyne 2010; Daly and Smith 2011), our engagement with such buildings (Smith 2017) and the way we analyse and comment on the role played by iconic, historic buildings and architects (Kavanaugh 2008; Hauptmann and Radman 2013; Gorny 2018). As we move from architectural theory into architectural practice, concepts like the *diagram* and the *fold* have had a notable influence in the conceptual stages of iconic buildings by world-famous architects like Eisenman, Tschumi and OMA (Jobst 2013; Frichot 2014); and in the experimental work undertaken within the subfield of digital building design (Loo 2012, 2013). Whilst such lines of enquiry have been the focus for much of the discourse on Deleuzo-Guattarian philosophy and architecture, we can also identify a small but growing body of literature aimed at reshaping this relationship by exploring 'situated and concrete' architectural practices (Doucet and Frichot 2018).

This approach is reflected in Smith's study of 'germinal practice' (2008) and Frichot's study and proposals for an 'ecology' of architectural practices (2018). Many of the projects identified in such studies are 'experimental, risky and probing' (Doucet and Frichot 2018: 5). They provide us with an un/conscious subversion of 'mainstream and professional' architectural practices (Smith 2008) achieved by efforts to 'contravene the expectations of what an architectural project should be or should do' (Frichot 2018: 62). These subversive practices are not limited to architecture. In the spirit of Frichot's ecological approach, they 'seep into possible worlds' (ibid. 92) providing us with opportunities to challenge different areas of practice and the broader political assumptions that underpin them. Such projects provide hope for those who see architecture and associated disciplines like planning as a way of engaging with some of the political motivations found in Deleuze and Guattari's philosophy (Parr 2013; Purcell 2013).

But, one may ask, what of the mainstream, commercial practices that produce the offices, housing, shops, schools and community buildings that we see and engage with in our day-to-day lives? What of the everyday design decisions made by professional architects and technicians sitting at their desks and drawing boards? Are these to be excluded from architecture's engagement with Deleuzo-Guattarian philosophy? Whilst this may constitute the majority of the work

undertaken by individuals who associate themselves with 'architecture', these everyday decisions have been almost entirely ignored within these debates. Where mainstream, commercial projects do feature, they are often seen as poorly suited or contradictory to Deleuze and Guattari's philosophical project. But, as I will show in the following section, Deleuze and Guattari's proposals for the strata and the machinic assemblage are drawn from their underlying attempt to expand Hjelmslev's planar composition from a tool used to analyse language to an axial composition used to analyse the formation and evolution of *all* things. There is nothing within the ontological composition of these concepts, therefore, to suggest that it should not be used to analyse mainstream, commercial architectural practice. Nor is there any reason for us to assume that using Deleuze and Guattari's philosophy to study these 'everyday, real world' architectural processes should be any less insightful than studies based in architectural theory, laboratory experiments and concrete practices at the limit of the profession.

With this in mind, this paper explores such engagements in two stages. In the first part, I focus on defining the strata and the machinic assemblage as abstract compositions[1] developed out of Hjelmslev's analytical framework. In the second part, I consider how these abstract compositions might be translated into and used to analyse a concrete, 'real world' case set within professional architectural practice. Building on this insight, I will argue that such projects can help us navigate and better appreciate Deleuze and Guattari's abstract concepts. And reciprocally, I will argue that these abstract concepts can provide new and important insight into the complexity of the design process in professional, commercial practice.

II. An Ontological Framework: Strata and Machinic Assemblages

Of all the concepts from Deleuze and Guattari's ontology, it is the assemblage that has gained the greatest traction within the spatial disciplines more broadly. By contrast, very little effort has been made to understand the strata or the relationship between these two concepts. To appreciate the conceptual distinctions and alignments between these two concepts we must explore their status and role within *A Thousand Plateaus* as well as their origins within Hjelmslev's planar framework (see Deleuze and Guattari 2004: 39–74; Buchanan 2017). It is beyond the scope of this single paper to cover this task in full. On this basis, the following text will draw on Deleuze and Guattari's adaptation of

Hjelmslev's planar composition to develop a working definition of these concepts and their relationship, a definition that I will expand in a forthcoming publication.

To navigate these changes, and to retain the image of the strata and assemblage as an analytical compositional, this paper will explore this line of enquiry through a series of diagrams rather than relying on text alone.

A. Planes of Content and Expression

In his seminal text *Prolegomena to a Theory of Language* (1961), Hjelmslev sets out an abstract, theoretical framework for analysing the formation of linguistic entities within all languages. This analytical framework is composed of three planes: the Plane of Unformed Matter (which he also terms the 'purport'), the Plane of Content and the Plane of Expression. A linguistic entity is created when unformed matter from the purport transfers across the other two planes.

In the first instance, unformed matter appears as substance on the Plane of Content where is it organised into a specific form. This first process, Deleuze and Guattari argue, defines a first articulation. To develop further, this roughly organised form must be articulated a second time on the Plane of Expression. As in the first articulation, this happens as a combination of form and substance. Form is used to organise the components of the emerging language in a more structured way before capturing these as a complex substance (Figure 1).

In '10,000 B.C.: The Geology of Morals (Who Does the Earth Think It Is?)' (2004: 39–74), Deleuze and Guattari present one of their most radical propositions when they argue that the 'net' of concepts developed within this planar composition is not only applicable to the formation and structuration of linguistic entities but applicable to *all* things (2004: 43). To make this fundamental transition from language to ontology (Bogue 2018), Deleuze and Guattari must expand and adapt this basic composition in a number of ways.

These changes are developed within this and other chapters of *A Thousand Plateaus*, but for the purpose of this paper I would like to explore what I hold to be three of the most significant of these. The first is based on the addition of two concepts: *milieus* and *de/reterritorialisation*. These two concepts provide a more nuanced understanding of development within and across the two planes. The second change expands the generic composition of the strata further by breaking it into three variants: the physical, the organic and the linguistic

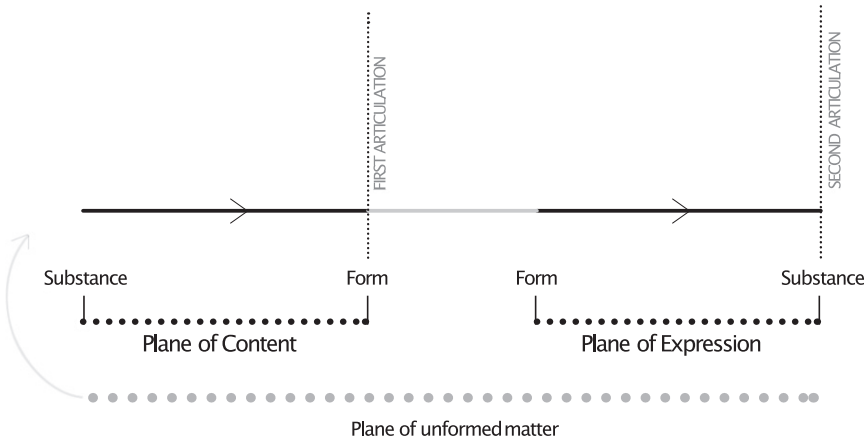

Figure 1. Double articulation across Hjelmslev's planes of content and expression. (Source: Author.)

strata. And the third introduces the concept of the *machinic assemblage* to explain how development moves into, across and beyond these strata.

B. Milieus, De/territorialisation

As Figure 1 suggests, Deleuze and Guattari's reading of Hjelmslev's framework defines the development of a linguistic entity as a double articulation (Martinet 1969), each located at the extremity of the two planes. Within this framework these two articulations are treated in relative isolation and presented as singular, linear movements within and across both planes. But this image does not allow for the possibility that many developments within these planes are not fully articulated.

We can appreciate why this might be a problem by reflecting on the design process. If we were to study a typical architect's desk or drawing board, we would probably find that it is covered with partial sketches and print-outs. These may contain partly completed roof configurations, window details and arrangements, partially formed sections or facade designs. It would be difficult to argue that any of these sketches are sufficiently organised to be counted as complete articulations of a building. It would probably be more accurate to describe them as 'partial' rather than complete articulations that literarily and figuratively pile on top of each other as the design process progresses.

So how do Deleuze and Guattari adapt the planar composition to take account of these partial articulations? To answer this question, they

introduce the concept of the *milieu*, which they define in three parts: an interior milieu, an exterior milieu and an intermediate milieu. The first two of these are used to rename the substances identified by Hjelmslev in his planar framework (i.e. the substances that mark the Plane of Content and the Plane of Expression). As in Hjelmslev's proposals, the exterior milieu constitutes formed matter drawn into the development process, and the interior milieu constitutes the complex elements and compounds produced as a result of the development process (Deleuze and Guattari 2004: 49).

Whilst these terms do not significantly adapt the planar composition, they provide Deleuze and Guattari with an opportunity to explore the space between these extremes, which they term the *intermediary milieu* or *epistrata* (ibid. 50). For those of us interested in the complexity of the design process, the partial articulations that form this intermediary milieu are as important as the two articulations that mark the planes. So, one may ask, how are such intermediary milieus formed? Or, in other words, why does the architect abandon one line of design development to start another? To navigate such questions Deleuze and Guattari suggest that this intermediary milieu is formed through acts of *de/reterritorialisation*.

Within '10,000 B.C.: The Geology of Morals (Who Does the Earth Think It Is?)', Deleuze and Guattari link this concept into Hjelmslev's planar composition when they note that 'substances, being formed matters [in the exterior milieu], relate to territorialities and movements of deterritorialisation and reterritorialisation on the epistrata [intermediary milieu]' (ibid. 53, 54). As this quotation suggests, formed matter drawn into the development process is responsible for breaking up the emerging substances and triggering a new line of development within a given plane.

This assertion is logical in the context of building design. It suggests that the selection and organisation of formed matter is broken up and reformed when one draws in or takes account of other formed matters. These formed matters might include the ground conditions below the site, adjacent trees, adjacent buildings or a structural steel frame designed specifically for the building. Each of these formed matters comes with its own set of tendencies and capacities that can impact on other parts of the design. Deep-lying clay below the site, for example, has the capacity to absorb changing moisture conditions and, thus, has a tendency to expand and contract at different times of the year. To accommodate these tendencies and capacities, the design team may need to add in other formed matters such as piled foundations, which, in turn,

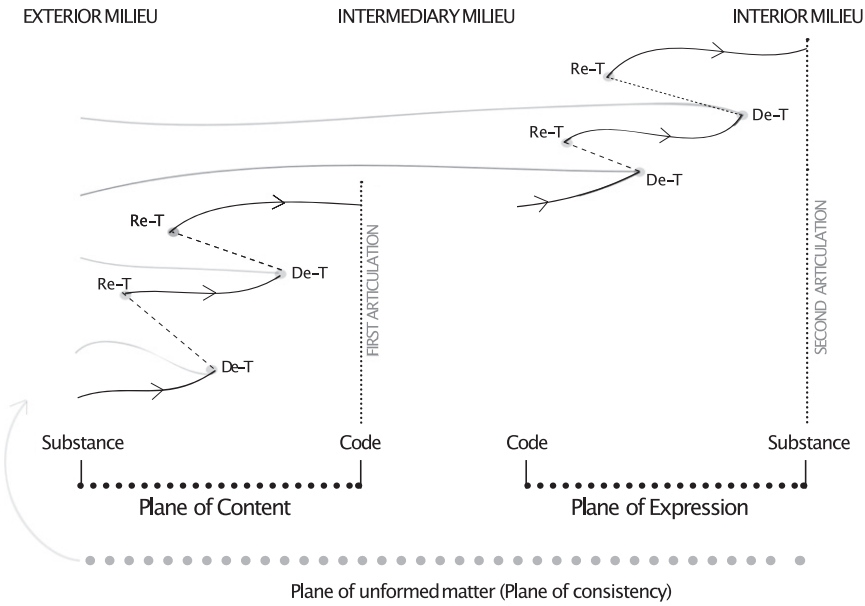

Figure 2. A general composition of the strata. (Source: Author.)

changes the design of the building structure, and thus the wall design, the location of the windows, the position of the internal rooms and so forth.

In such instances, the introduction of new formed matter into the design (deep-lying clay) breaks up the combination of substances formed within the partially articulated design of the building. But the same material also determines which other materials are drawn into the design, how they are selected and how they are organised. As Deleuze and Guattari note, acts of deterritorialisation are almost always followed by acts of reterritorialisation (ibid. 54).

Given that these acts of de/reterritorialisation cut through rather than develop out of the intermediary milieu, Deleuze and Guattari suggest that they should be conceptualised as part of a different 'axis'. Thus, whilst the movement from and across planes can be positioned within a horizontal axis, acts of de/reterritorialisation can be located within a vertical axis. These additions add a new dimension to Hjelmslev's analytical framework, transforming it from a planar composition to an axial composition. This provides us with what we might term 'a general composition of the strata' (Figure 2).

Figure 2 shows how these changes expand Hjelmslev's underlying planar composition. But this generic composition does not, yet, achieve

Deleuze and Guattari's underlying aim of transforming Hjelmslev's framework from a linguistic tool to an ontological tool. To make this transition, Deleuze and Guattari suggest that the generic composition of the strata set out in Figure 2 can be unpacked into three variants, which they describe as physical, organic and linguistic (or 'Alloplastic'; Bogue 2018).

C. Three Compositions

Deleuze and Guattari distinguish these variants in three ways: according to the way development moves across the two planes; in the level of autonomy attributed to the second plane (the Plane of Expression); and in the way we conceptualise acts of de/reterritorialisation within each composition.

In the physical strata, Deleuze and Guattari suggest that the shift from one plane to another represents a change in the order of magnitude rather than a fundamental change in the code itself (induction). This smooth transition is possible because each of the planes is undifferentiated. This lack of differentiation means there is no fundamental distinction between acts of de/reterritorialisation in the Plane of Content and the Plane of Expression (Figure 3).

Deleuze and Guattari's proposals for the organic stratum reveal several important changes to the composition of the physical strata. First, they argue that to form an organic entity, the Plane of Expression must detach itself from the Plane of Content and become autonomous. Second, they suggest that this autonomy is achieved because the form (code) and substance (territoriality) of expression become indistinguishable:

> In short, what is specific to the organic stratum is *this alignment of expression, this exhaustion or detachment of a line of expression*, this reduction of form and substance of expression to a unidimensional line, guaranteeing their reciprocal independence from content without having to account for orders of magnitude. (2004: 59, emphasis in original)

These two differences prevent a simple, inductive transition across the two planes. To make this transition possible, Deleuze and Guattari propose that codes are 'transduced' (or transcoded) from one plane to another (ibid. 60, 313). This process, they add, arises out of 'surplus value' within the code (ibid. 53).

This concept of surplus value can be explained by considering the tendencies and capacities set out in the above example. When the design

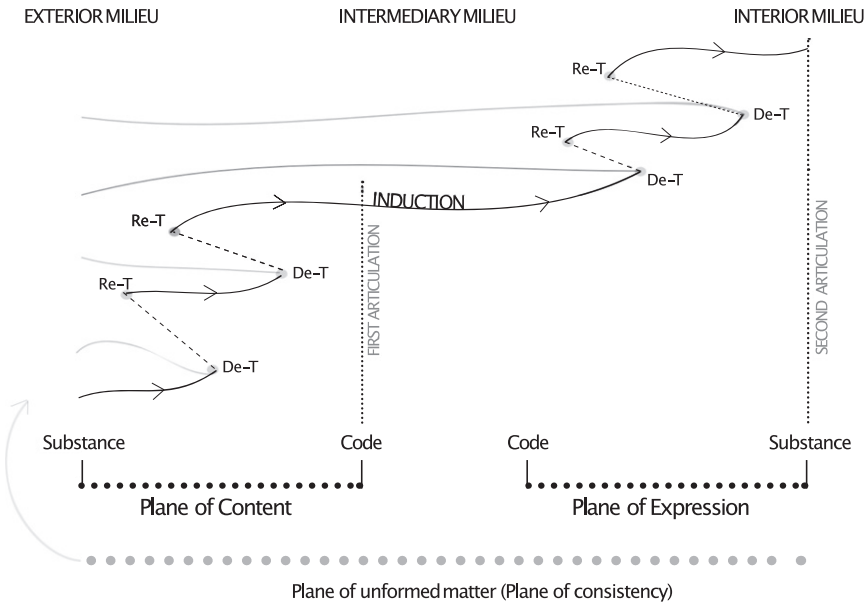

Figure 3. The physical strata. (Source: Author.)

team introduce new formed matter into the design, they do this because these matters have capacities and tendencies that are valuable to the emerging design. So, for example, the introduction of a piled foundation outlined above has the capacity to transfer the load of the building into solid ground below any deep-lying clay. The steel structure has the capacity to direct the weight of the building into these piles and so forth. However, each of these formed matters contains tendencies that are not being valued within the emerging design. The steel structure, for example, has the capacity to cantilever far beyond the building envelope without compromising its structural integrity or the structural integrity of the building as a whole. This capacity, therefore, lies dormant or surplus to the requirements of the building design.

Thus, when Deleuze and Guattari argue that the organic stratum develops through transcoding, they are suggesting that the shift from the Plane of Content to the Plane of Expression occurs out of this surplus value. As they note elsewhere, this occurs when this surplus value takes on an expressiveness that allows it to move beyond the functional demands of the building. At this point, formed matter undergoes a significant change. As Deleuze and Guattari note, these formed matters 'cease to be directional, becoming dimensional instead, … they cease to

be functional to become expressive' (ibid. 315). At this point, the formed matters that defined the intermediate milieu within the Plane of Content become 'matters of expression' (qualities) that define the intermediate milieu of the Plane of Expression (ibid. 315).

The level of autonomy afforded to this Plane of Expression through the creation of expressiveness also changes the way we conceptualise acts of de/reterritorialisation within each plane. Within the first plane, de/reterritorialisation follows the same processes described above. As in the example of deep-lying clay below the site, such formed matter is introduced into the design process, the result of which is a de/reterritorialisation of the scheme based on the unique tendencies and capacities of such matter.

But in the second plane of the organic stratum, Deleuze and Guattari argue that all developments within the intermediate milieu are formed through and in support of an autonomous line of expression (ibid. 59, 317). In such instances, formed matter is introduced specifically to reinforce this line of expression. Because these partial developments all contribute to the same line of development, they have a higher threshold for deterritorialisation (ibid. 60). This higher threshold reduces the likelihood of deterritorialisation, but it also increases the impact that such acts have when they do occur. Rather that producing a minor, incremental change to the sequence of developments within the plane, these acts of deterritorialisation break up many of the substances supporting the line of expression and result in a more substantial act of reterritorialisation (ibid. 60) (Figure 4).

In the third composition, Deleuze and Guattari subdivide the planar framework further by dividing the Plane of Expression into its two components: form (code) and substance (territoriality) (Figure 5). This also facilitates greater autonomy of expression, but this time, within the code of expression only. The autonomous role of the code of expression results in efforts to translate physical *and* expressive substances into an abstract organising structure, that is, language. The result, they argue, is a 'superlinearity' of expression, or what they define elsewhere as acts of 'overcoding' (ibid. 62).

This act of 'overcoding' also helps to facilitate another important distinction. In the development of physical and organic entities, substances were selected to fulfil specific purposes. But in the linguistic composition, *all* substances are drawn into the Plane of Expression regardless of their functional or expressive qualities. These include substances within physical compositions as well as expressive substances. In doing so, the superlinear code of expression is used to

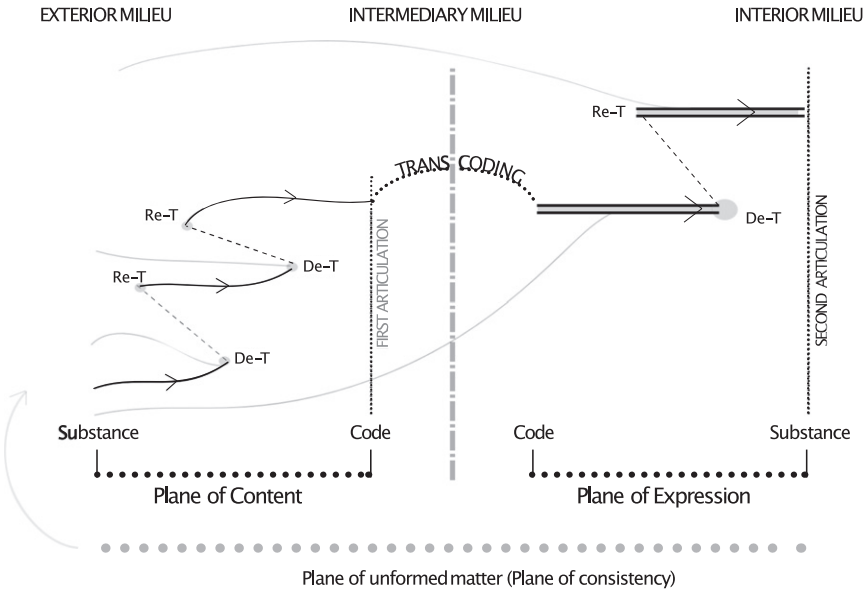

Figure 4. The organic strata. (Source: Author.)

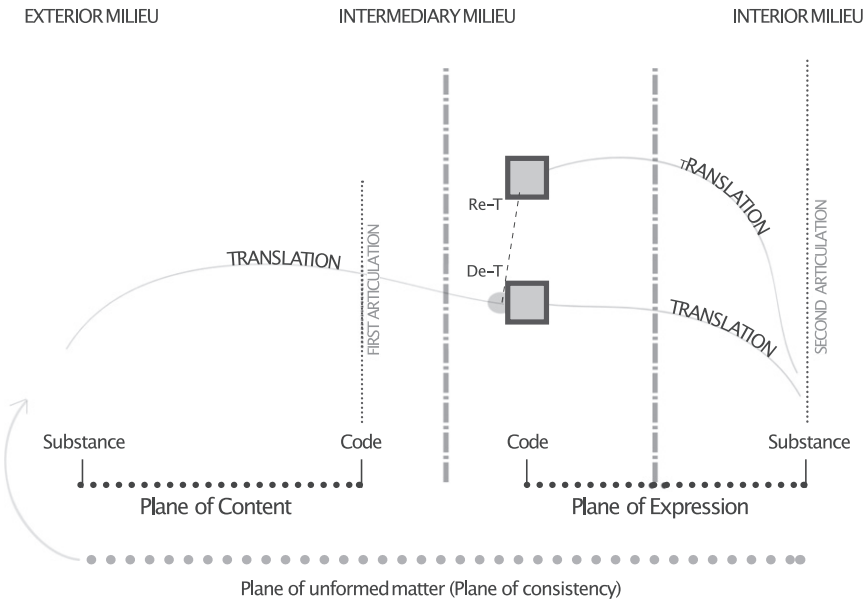

Figure 5. The linguistic strata. (Source: Author.)

organise and give meaning to *all* entities regardless of their physical and expressive status (Figure 5). And because this code is autonomous, this meaning can be transferred (or translated) from one entity to another. As Deleuze and Guattari note:

> This property of *overcoding* or *superlinearity* explains why, in language, not only is expression independent of content, but form of expression is independent of substance: translation is possible because the same form can pass from one substance to another, which is not the case for the genetic code, for example, between RNA and DNA chains. (2004: 62)

This greater level of autonomy attributed to the superlinear code further raises the threshold for deterritorialisation as well as the extent to which such acts of deterritorialisation impact on the substances formed out of this code.

Taken together, the above diagrams provide us with an overview of the strata as an analytical composition formed from three variants. These three variants provide us with a framework in which to locate and discuss the process of development. But this does not yet account for the movement into, through and across these planes or how such planes relate across different strata and other wider influences on this development process. To fill these gaps, Deleuze and Guattari present us with the concept of the assemblage.

D. Machinic Assemblages

For the purpose of this paper I would like to form a simple distinction between the different uses of the assemblage concept as set out in *A Thousand Plateaus*. As Deleuze and Guattari note, there are only two kinds of assemblage identified within this core text: the *machinic assemblage* and the *collective assemblage of enunciation* (ibid. 22). These two assemblages have a greater or lesser role within the three strata compositions. Whilst the latter only relates to the linguistic strata, the former relates to all three compositions. This observation provides us with some clarity surrounding the 'general conclusions [they identify] on the nature of Assemblages' as set out in the fourth plateau, 'November 20, 1923: Postulates of Linguistics' (ibid. 88), and the concluding plateau, 'Conclusion: Concrete Rules and Abstract Machines' (ibid. 503–4). In both instances, Deleuze and Guattari refer to both kinds of assemblage using 'The Assemblage' as an umbrella term, and do so in reference to the linguistic strata only.[2]

In anticipation of the subsequent section of the paper, which limits the scope of the study to the physical and organic strata only, I would like to focus my attention on the first of the assemblage types, namely the machinic assemblage.

In '10,000 B.C.: The Geology of Morals (Who Does the Earth Think It Is?)', Deleuze and Guattari note that the machinic assemblage performs three roles: it is responsible for connecting the planes of the strata with the plane of consistency, for regulating the relationships between the two planes of content and expression and regulating the transition from one stratum to another (ibid. 40, 71, 73).

Figure 6 shows how the addition of the machinic assemblage concept allows Deleuze and Guattari to connect the strata types together to produce a much larger composition. However, this conceptual framework is still highly abstract and does not alone explain how development moves within and across the three strata types. Nor does it explain how we use concepts like induction, transduction, the intermediate milieu and processes of de/reterritorialisation help us locate and analyse such movements.

III. Using Strata/Machinic Assemblage Composition to Analyse a 'Real World' Architecture Project

One way to achieve this insight is to translate the abstract conceptual framework set out above into a concrete case. Deleuze and Guattari use this approach throughout their work, but the concrete cases selected are often very limited and are drawn from a range of different fields. In '10,000 B.C.: The Geology of Morals (Who Does the Earth Think It Is?)', for example, they make references to the formation of sedentary rock, crystals and cells to discuss individual concepts or ideas. But as a group, these examples offer only a fragmented image of the composition, and no clear indication as to how we should link these fragments together or to other disciplines like architecture.

With this in mind, the following text will consider how the area of the strata/machinic compositions set out above (based around the physical and the organic strata) might be used to analyse a single case drawn from a real-world, commercial architectural project based in the UK. As with all complex buildings, it is beyond the scope of this paper to cover the entirety of this design process, to cover it in great detail, or to appreciate how the design could have been otherwise if different decisions had been made. Neither is it possible to fully appreciate how this design process works across all three strata. This is particularly difficult for the last

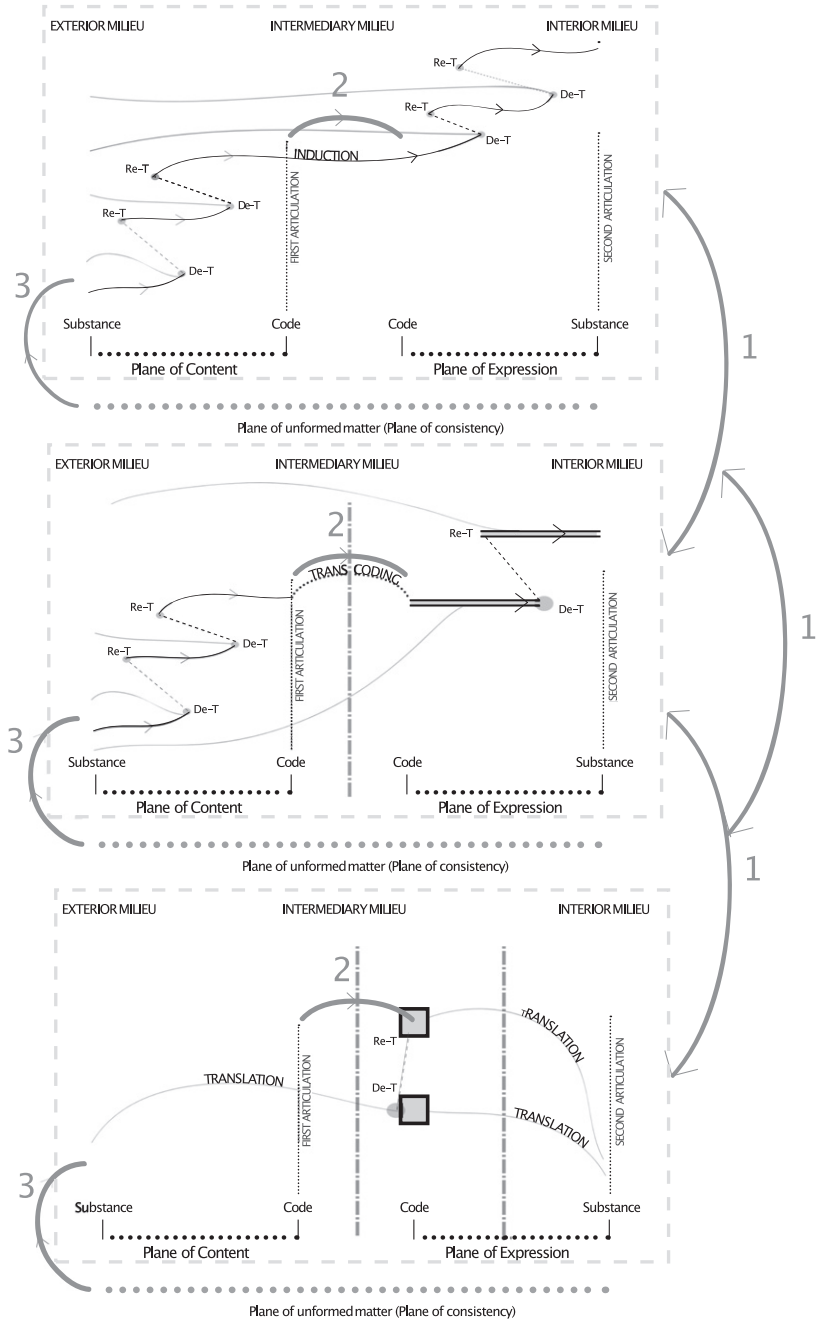

Figure 6. A general composition of the strata/machinic assemblage. (Source: Author.)

of the three variants, the linguistic strata. A fuller and more detailed review of such processes and the three strata will be covered in a future publication.

For the purposes of this paper, therefore, I have focused on a single design sequence undertaken in the transition between what architects might term a 'concept/scheme design' and a 'detailed design'. This sequence has been adapted and simplified in part by drawing on my own professional experience working as a practising project architect for over ten years. It has also been informed by extensive discussions with the project architect and associated technical staff who worked on the scheme during the design and construction period.

The scheme I have chosen for this purpose is the design of a cluster of large buildings intended as student accommodation for a UK university. The proposals occupy a site within a conservation area characterised by a combination of Victorian and Georgian terraced and semi-detached dwellings constructed in traditional brick with pitched slate roofs and feature bay windows to the front.

A. Intermediate Milieu: The Partial Articulations of a Roof and External Wall Design

The design sequence I have selected starts with an initial sketch scheme for the roof and external walls around the building. At this stage, the roof and wall designs were determined by a limited set of codes. As with most roofs in the UK, these were used to select and arrange materials that have the capacity to resist water penetration, changes in temperature, snow loading, wind loading and so forth. More specific to the site, this code included limitations on the overall height of the building set by the local authority planning officer and a requirement for the number of units on the site to ensure the scheme was financially viable. For the walls, these codes also included the capacity to withstand and transfer the imposed loads of the building envelope, and more specifically to include the client's aspirations for a facade clad in contemporary materials.

This collection of demands produced the first code for this sequence in the design process and was used to select and arrange materials. This resulted in a wall and roof design based around a steel frame structure with a cold-rolled steel infill system packed with thermal insulation and finished externally with an aluminium sheet cladding/roofing system (Figure 7).

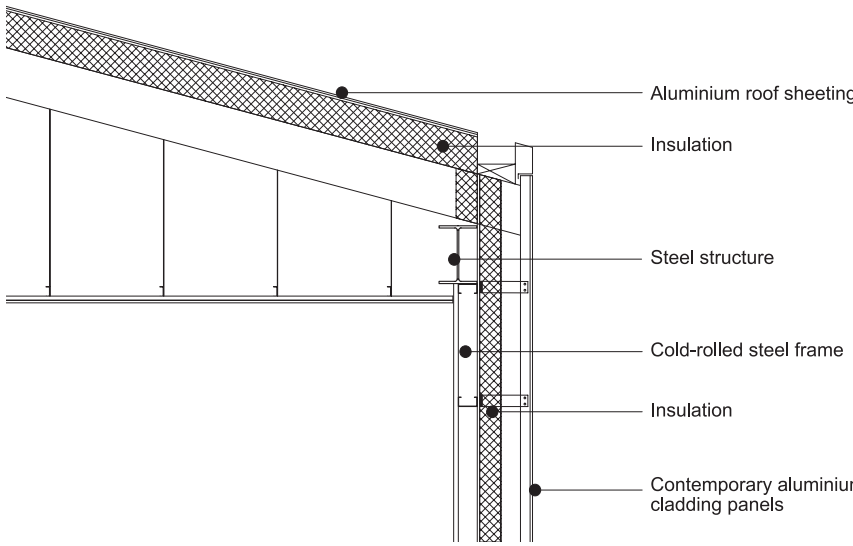

Figure 7. Partial section of the roof and wall design: initial scheme. (Source: Author.)

The first significant act of de/reterritorialisation in the design sequence. As the design process developed, parts of this design were deterritorialised following the introduction of other formed matters, one of the most notable of which was the introduction of plant equipment to the roof space. The plant equipment required for a scheme of this size placed a significant imposed load on the roof structure. Whilst a lightweight steel structure has the capacity to withstand the dead load of most roof coverings and the live load associated with maintenance access for such coverings, it is unable to withstand this additional loading.

Following this act of deterritorialisation, the unique demands of this plant equipment went on to inform the selection and organisation of alternative materials. The position and weight of the equipment was used to select a reinforced concrete slab of a given thickness, as well as the location and size of the supporting steel frame below. The maintenance demands of this equipment determined the gradient of the slab, the selection of a durable material acting as a walkway around the equipment and the extension of the external wall to act as a barrier to prevent falling.

The introduction of these materials also formed the basis for selecting and organising other materials. Reinforced concrete has a capacity to resist loading without cracking, but it has a limited capacity to retain

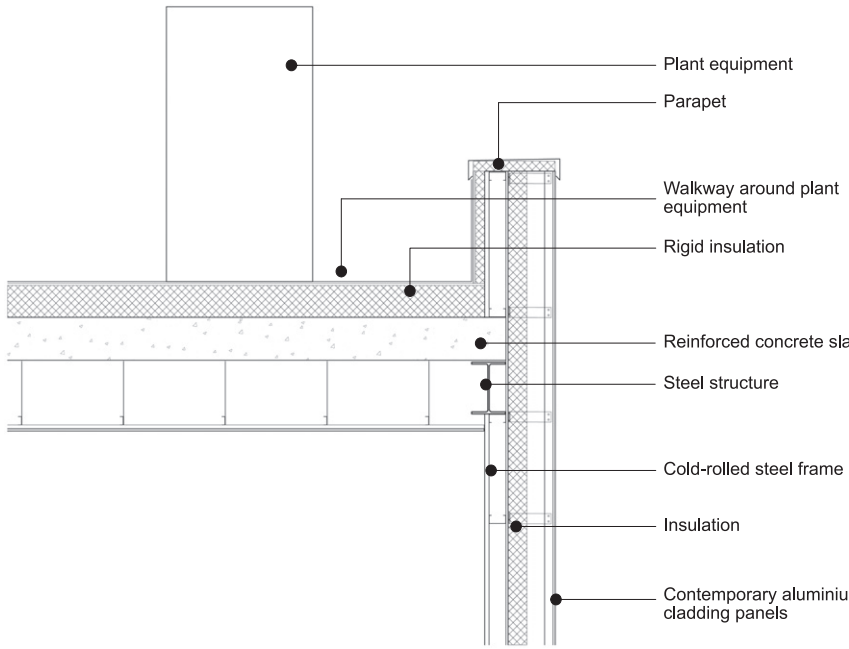

Figure 8. Simple section of the roof and wall design. (Source: Author.)

heat. And unlike a lightweight steel roof, which can incorporate other thermally performant materials between its structural components, the reinforced concrete slab can only accommodate such materials if they are laid over its outer face.

This configuration introduced new demands that further refined the selection and organisation of other materials. Given its position above the slab, the insulation material would not only need to retain heat but would also need to resist compression under the weight of the plant equipment and the capacity to act as a substrate for a roof covering. These newly identified demands added to the code for the roof design, leading to the selection of a rigid, high-density foam insulation (extruded polystyrene), and the reselection of a tiled walkway product that could be mechanically fixed to its surface (Figure 8).

This short sequence provides us with two further insights into Deleuze and Guattari's proposals for the intermediate milieu and de/reterritorialisation on the Plane of Content. First, it demonstrates the idea that any distinction we make between code and substance is a relative one. This is because the code used to form the building is

derived from the substances added into the design and used to select other substances which adapt this code further.

Second, it shows that the relationship between formed matter (substance) and code is not limited to one stage of the development process. Once added, this example shows that the tendencies and capacities of these formed matters had an immediate impact on the code of the roof design (such as the weight and maintenance requirements of the plant equipment). But it also shows that some of these tendencies and capacities were only translated into a code when other formed matters were added to the configuration.

In Deleuzo-Guattarian terms, this reflects the distinction between code and surplus code as set out in the previous section of this paper. It demonstrates that surplus value is not only related to the process of transcoding within the organic strata or the process of decoding between strata, but is equally present in developments within the intermediate milieu running along the Plane of Content.

The second significant act of de/reterritorialisation in the design sequence. Expanding on this design sequence, I would like to consider a second significant act of de/reterritorialisation. As noted above, the site for the development is situated within a conservation area of the city. Buildings within this context are characterised by traditional, pitched slate roofs, brick walls and projecting bay windows. Given that these buildings have no physical connection to the development site, their unique capacities and tendencies did not influence the roof and wall design directly. Their impact on the code for this design arose when they were combined with other entities such as local planning policy and the interpretation of such policy by a local planning officer.

Local planning policy for the site stipulates that any new developments within the conservation area must be sensitive to the aesthetics of the surrounding buildings. In response to this policy, the planning officer requested that the roof design around the perimeter of the proposed building should mirror the traditional pitched roof configuration of adjacent buildings and should include a tile-like finish. Similarly, the design of the external wall should include traditional brick construction, particularly to the lower levels of the building.

As in the introduction of plant equipment, the introduction of a pitched, tiled roof and traditional brickwork resulted in another act of de/reterritorialisation. But unlike the introduction of plant equipment, these changes to the code did not result in a completely different set of materials arranged in a completely different configuration. As Figure 9

shows, much of the roof configuration was retained, but was set back from the perimeter of the building and only half of the external wall was redesigned in brickwork. These minor adaptations of the configuration were driven by two factors: limitations in the code (which defined the need for a pitched roof to the perimeter and brickwork to lower levels only), but also by the tendencies and capacities of the materials that form the configuration. In terms of the roof, for example, a concrete floor slab has the capacity to be cast in different sizes, and the structural frame supporting the edge of this slab can be relocated without losing its capacity to withstand and transfer the imposed loadings of the roof.

This example provides further support to Deleuze and Guattari's argument that most acts of deterritorialisation are relative because they are often followed by acts of reterritorialisation. But it also provides greater nuance to this assertion. It suggests that some acts of deterritorialisation are more relative than others because (1) the formed matter introduced into the development produces a code that has a greater or lesser influence on the development, and (2) the materials that form the existing composition have a greater or lesser capacity to absorb such changes.

This nuanced understanding of relative deterritorialisation can be expanded by considering the area of the roof that *was* significantly adapted to accommodate the pitched roof. Earlier in the design process I showed how the increased loading imposed by plant equipment could not be accommodated by the lightweight steel frame used in the initial roof design. But the introduction of a pitched roof into the building design changed this dynamic. Given that the plant equipment required a flat surface to allow appropriate maintenance, such equipment could not be placed over the pitched roof. This meant that the selection and organisation of materials around the perimeter were no longer governed by this demand, that is, by the code developed from the plant equipment. As a result, the architect was able to reselect the lightweight roof structure used in the initial sketch scheme and use this as support for a traditional tiled roof finish as requested by the local authority planning officer (Figure 9).

This simple example shows that whilst an act of deterritorialisation is usually followed by an act of reterritorialisation, it can also produce future reterritorialisation that occurs much later in the process, and in response to different acts of deterritorialisation. Here we can see a conceptual parallel to the concept of coding and decoding. As above, coding reflects the tendencies and capacities that are deemed valuable to the development process, whilst decoding are those capacities that lie

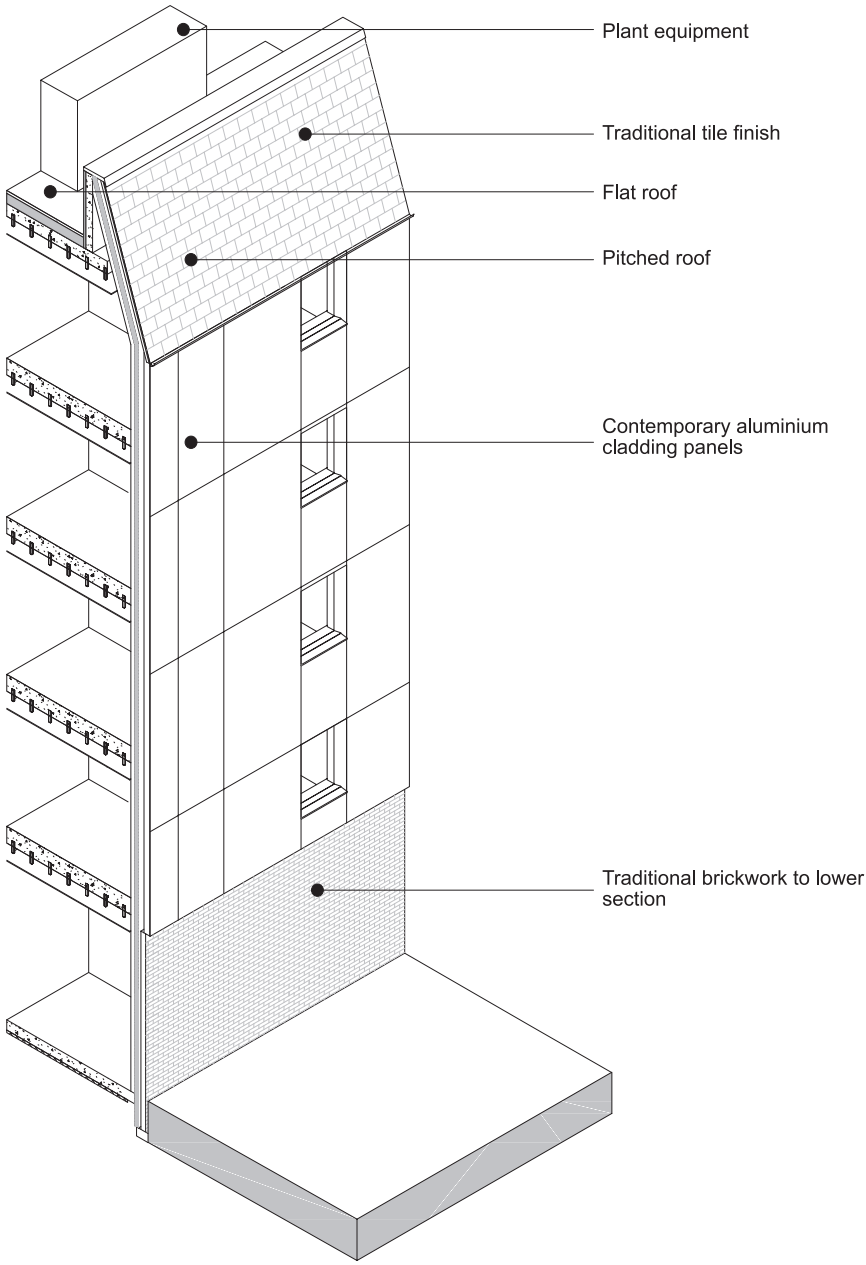

Figure 9. Axonometric view of the roof design as a flat and pitched roof. (Source: Author based on drawings by the architect.)

dormant until they are activated by the introduction of other formed matter and other acts of deterritorialisation. What we have, therefore, are four 'factors [that] communicate or interlace in the [intermediary] milieus' (ibid. 54) to produce a complex and highly unique design process.

B. The Formation of an Organic Stratum

Up to this point, the design sequence has been focused within the area of the composition attributed to the Plane of Content. What I would like to explore now is the point at which the design sequence transitioned from this plane into the Plane of Expression to form an organic stratum. As noted in the previous section of the paper, this occurs when surplus value is not used to adapt the code but is transcoded to form a matter of expression, or what Deleuze and Guattari also term an 'expressive statement' (ibid. 97–8).

A notable example of this transition can be seen in the design of the interface between the external finishes for the roof and the wall (i.e. between slate tiles and aluminium cladding). Within this design process, the architect identified a number of capacities that had not been valued within the current configuration. As a sheet material, this aluminium cladding can be cut into small tile-like sheets and can be fixed to sloping as well as vertical surfaces. Its relative strength and malleability provide it with a capacity to be cut and shaped to high levels of precision, allowing it to form a seamless transition from vertical and sloping sections.

Some of these capacities replicated those already identified in other materials. Slate tiles, for example, are able to provide the traditional tile-like finish demanded by the planning officer. Others, such as its capacity to form a seamless transition across different surfaces, serve no functional role in the building and do not feature within the code used to design the roof or the wall. Rather than dismissing this surplus value, the architect decided to use these capacities to express this interface, resulting in what most practitioners might term 'an architectural statement'. In doing so, this architect transformed (transcoded) this surplus value into an expressive quality. Not only did this transition mark the point when the design process shifted from the Plane of Content to the Plane of Expression, but it also marks a further act of de/reterritorialisation of the design and the engagement of a machinic assemblage whose role is to regulate this transition between the two planes.

The third significant act of de/reterritorialisation in the design sequence. To express this seamless transition between the wall and roof finishes, the architect broke up the organisation of materials within the roof and selected other materials that closely matched those used in the wall design. This led on to other design changes. To reinforce the image of a seamless transition between the wall and the roof, the architect redesigned the size and layout of the cladding panels to the wall and the location of the gutter running along this interface. The large rectangular cladding panels were replaced with small, square panels, and the face-fixed gutter was exchanged for a concealed gutter positioned behind the cladding panels. Each of these changes resulted in a sequence of minor adjustments to the overall organisation, including the relocation of windows to coordinate with a revised cladding panel layout and the redesign of the wall structure to accommodate a concealed gutter and rainwater down-pipe (Figure 10).

This example has many parallels with the introduction of formed matter in the Plane of Content (plant equipment and the pitched roof). The introduction of an expressive quality broke up the composition of materials formed earlier in the design process (deterritorialisation) and directed the subsequent selection and arrangement of other materials (reterritorialisation). But this shift from formed matter to an expressive statement presents us with a fundamental change in the way we understand the relationship between code and substance.

In the previous acts of de/reterritorialisation on the Plane of Content, code was derived from the tendencies and capacities of substances, which led to the selection of other substances. Their tendencies and capacities changed and adapted this code, which was used to select different substances and so forth. But as we move from the Plane of Content to the Plane of Expression this design sequence shows that this simple dynamic is no longer applicable.

As above, the code is still partly derived from the tendencies and capacities of building materials. The aluminium sheet cladding, for example, is selected because of its capacity to be cut and fixed in a configuration that aligns with the cladding used on the roof, and the fixing mechanisms for this cladding are selected and located according to their capacity to conceal the gutter and rainwater system. But these capacities are *only* relevant within this part of the design sequence because they have been selected to support an expressive quality: the seamless transition between different building components. What this shows, therefore, is that within this plane the functional qualities of a substance become secondary to the advancement of an expressive

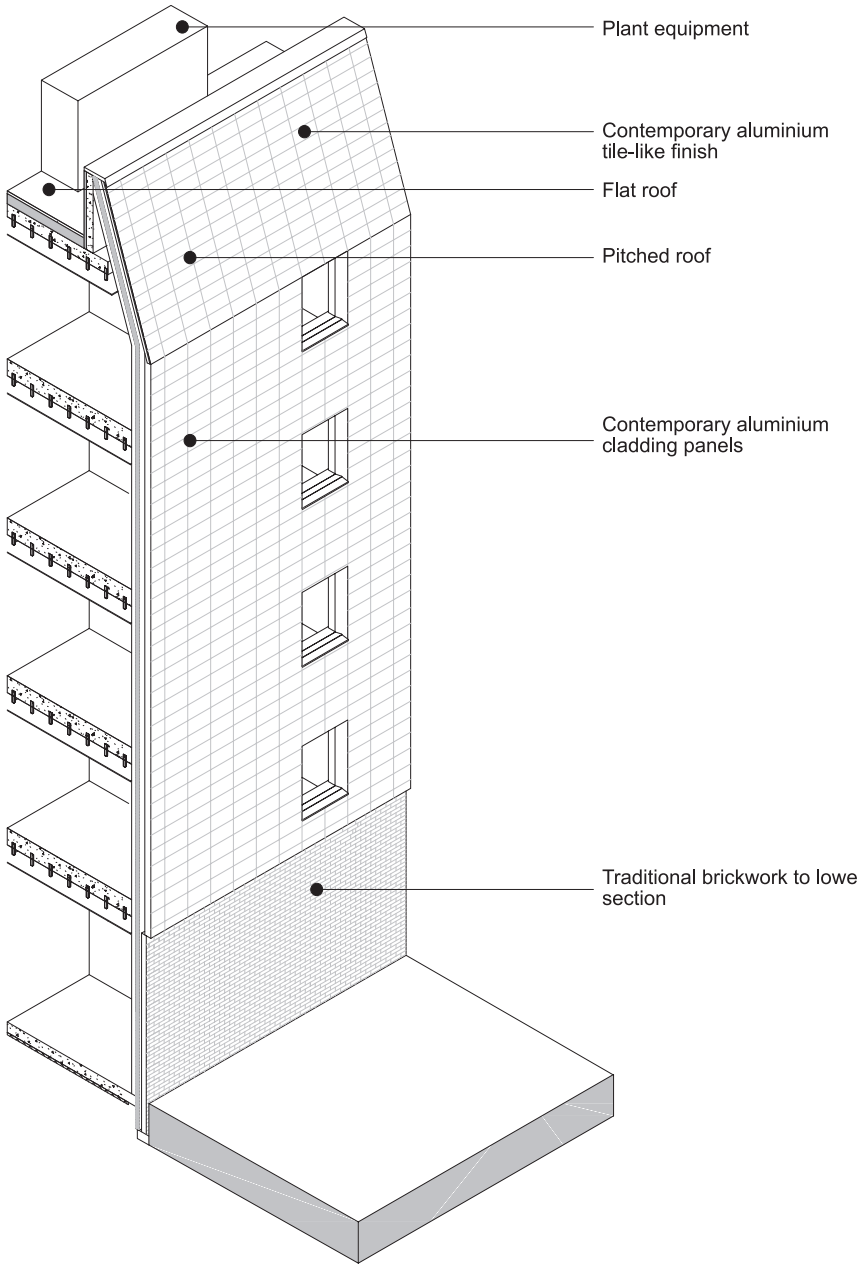

Figure 10. Axonometric view of the wall/roof design. (Source: Author based on drawings by the architect.)

quality. It also shows that the formation of an expressive quality leads on to a sequence of other changes in which formed matters are selected to support or reinforce this statement: a development which Deleuze and Guattari refer to as a movement from a single expressive quality (or statement) to the formation of an aggregate of expressive qualities (ibid. 329).

A line of expression. Once the architect had adapted the configuration of the roof and wall to reinforce the image of a seamless transition between both components of the building, they moved on to a different building component: the window design.

Up to this stage in the design process, the window design had been developed within the intermediate milieu of the Plane of Content in a similar way to the design sequences for the roof and the walls as discussed above. They too were developed as a series of iterations in response to codes identified and adapted by formed matter drawn into the Plane of Content. As with the roof and wall design, some of these codes were generic, including the requirement for visibility, air ventilation, acoustics and thermal properties. Their size and shape had also been determined by other, more specific codes drawn from formed matter within the emerging design as well as the context of the building. These included the location of rooms, the intended use of these rooms, the location of steels within the wall design and the size and shape of windows used in adjacent residential buildings within the conservation area. As a result of this code, the facade of the building contained a series of equally spaced, similarly sized windows that corresponded to the position of the internal floors and ceilings.

Rather than continuing to refine and adapt the code for the windows by drawing on other formed materials, the architect actively searched for other surplus value to expand the architectural statement of a seamless transition. After speaking with the window manufacturers, the architect found that the aluminium frame and glass used in the design of the windows were not limited to the sizes defined by the code. These aluminium frames could be manufactured as long vertical bands able to run across each of the floors within the building. By reconfiguring the window design to form such bands, the architect expressed the architecture statement in a different way: rather than a seamless transition between the wall and the roof, these windows formed a seamless transition across each of the accommodation floors in the building. And as above, this second statement produced an act of de/reterritorialisation in the window and facade design. The window

frames surrounding the windows were projected away from the face of the building to emphasise their verticality and each vertical band of windows was positioned at different heights to further disassociate their relationship with the floor levels (Figure 11).

These developments in the design sequence show how a 'line of expression' is produced when an expressive statement developed in one milieu (the roof/wall interface) is recreated in another (window/floor interface). If we imagine how this sequence might develop further, the same expressive statement could be used to develop the entrance design by forming a seamless transition between the inside and the outside of the building; or the design of the internal finishes by creating a seamless transition between public spaces (corridors) and private spaces (rooms). Each of these instances would include different substances selected and organised to reinforce the individual statement, but they would each be connected by a similar expressive quality and regulated by a machinic assemblage.

C. The Formation of a Physical Stratum

In architectural terms, the above sequence sits within an area of the design process often described as the 'concept' or 'scheme design'. At this stage, building materials have been selected and organised into formed substances. But the exact relationship between these materials is not sufficiently clear to appreciate what and how it will be built on site. With this in mind, the architect refined the design by exploring the layout in more detail, a process often described as 'technical design'.

To make this transition into technical design, the architect shifted attention away from the line of expression in the Plane of Expression to the codes within the Plane of Content. So, rather than considering how the expressive statement might be expanded into other areas of the building, the architect temporarily 'fixed' this roughly organised layout and considered how the codes might be refined further. The mechanical and electrical engineer used the fixed layout to recalculate the ventilation requirements of the building and the plant equipment to the roof; the structural engineer refined the loading calculations used to design the concrete slab and structural frame; and the architect recalculated the composite thermal value of the floors and walls (i.e. the U-values) to revise the thickness and specification of the insulation.

By refining these codes through more specific technical design criteria, each designer changed the specification of materials within the design. The mechanical and electrical engineer reduced the amount and position

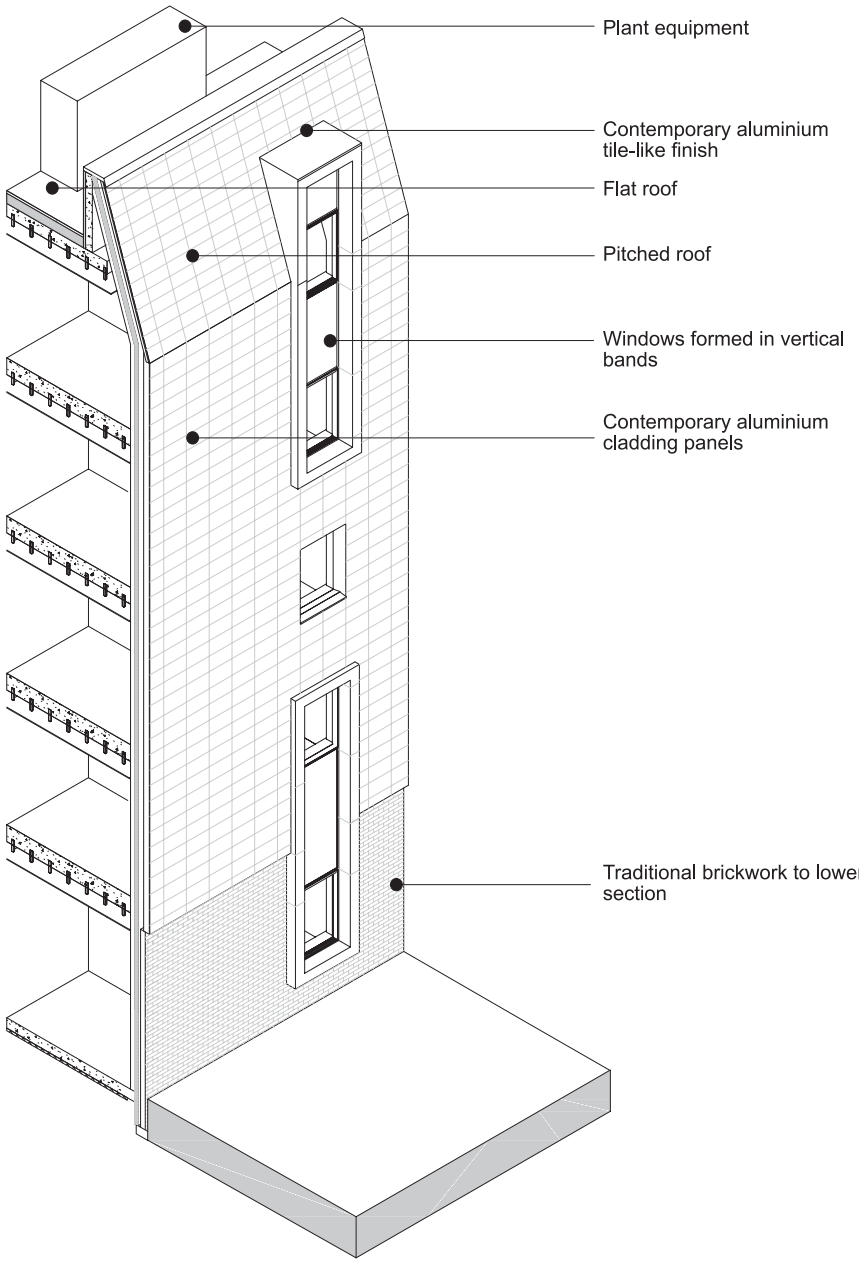

Figure 11. Axonometric view showing an expanded line of expression through the window design. (Source: Author based on drawings by the architect.)

of equipment to the roof; the structural engineer reduced the thickness of the floor slabs as well as the size and position of the columns; the architect reduced the thickness and position of insulation used within the wall configuration and so forth. As in previous acts of de/reterritorialisation, these minor changes affected the selection and organisation of other materials. Changes to the column design, for example, reduced the thickness of the walls, which led the architect to form another redesign of the wall configuration.

On the face of it, these amendments to the code seem to mirror the acts of de/reterritorialisation in the Plane of Content. The fundamental difference, however, is that these examples are used to add greater detail to an existing set of codes, what Deleuze and Guattari refer to as the process of 'induction'. As they note, this process represents a change in the order of magnitude rather than a fundamental change in the code itself. Returning to the compositions set out in the last section of the paper, this transition from the scheme design to the technical design stage reflects a shift from the Plane of Expression to the Plane of Content and then from one stratum to another: from the Plane of Expression in the organic stratum to the Plane of Expression in the physical stratum. And as such, this final extract suggests that this design process cannot be understood as a linear flow across planes, or a process limited to a single strata type. Instead, this example suggests that the design process can move back and forth from one plane to another and across different strata at different stages: a process that is made possible through the regulatory roles of the machinic assemblage/s that operate within and across all strata.

IV. Conclusion

In his 2017 paper, Buchanan reminded us that concepts like the assemblage were formed as a conceptual composition intended to help us understand and analyse the complexity of the real, rather than something to be found in the world around us (2017: 473). I believe that this paper has demonstrated the importance of this statement. It shows that the relatively simplistic diagrams presented in section II are useful, but only in as much as they provide us with a framework from which to identify and map key points in the design process.

Given that the design sequence in this paper is only a small and simplified snapshot of a much larger and far more complex process used to design only one building, we can imagine that a larger study would include all three strata types used many times and in

many different combinations. This larger study would also identify a further limitation of the paper, namely the focus on only one design sequence. It is important to recognise that this sequence does not capture all the other sequences that could have happened, resulting in different eaves details, different expressive statements and thus different lines of expression that, themselves, produced different material configurations. To understand these other sequences demands that we further interrogate how the machinic assemblage operates in each of its roles: how it draws unformed matter into the Plane of Content, how it identifies the code of such entities and their impacts on the partially articulated building, how the machinic assemblage regulates multiple transitions into the Plane/s of Expression but also, and perhaps more importantly, how this machinic assemblage regulates the transition from one strata type to another.

This paper, therefore, represents what I believe to be an initial step towards developing a Deleuzo-Guattarian methodology for analysing real-world design processes in professional architectural practice. But, as I have shown throughout this paper, I believe this also provides Deleuzo-Guattarian scholarship with an insight into the importance of developing a closer engagement with mainstream, commercial architectural practice – an engagement that might help us develop a more nuanced understanding of the concepts that form Deleuze and Guattari's philosophical project.

The design sequence above provides unique insight into concepts like de/reterritorialisation, for example. In this paper I have identified four significant acts of de/reterritorialisation. Two of these were identified in a Plane of Content shared across all three assemblage types, one was identified in the transition into the Plane of Expression within an organic stratum and the fourth was identified in the transition into the Plane of Expression within a physical stratum.

All four instances capture a point in the design process when a partially articulated roof/wall is broken up and reconfigured using different formed matter. But the paper has shown that they all do this in different ways. The differences reflect the kind of strata, the role of the machinic assemblage operating within and across these strata and the position within an overarching strata/machinic assemblage composition. And in doing so, each of the four acts of de/reterritorialisation provides different insight into the role and relationship between other key concepts contributing to these compositions. Such concepts include the tendencies and capacities of formed matter (substance), the code, decoding and the line of expression. For Deleuzo-Guattarian scholars,

therefore, I believe that this highlights the importance of the often-cited argument to think not just about what a concept is but what it does, and more specifically, what it does within a broader composition of other concepts.

Notes

1. The use of the term 'compositions' reflects the idea of a 'unity of composition' as set out in the third chapter of *A Thousand Plateaus*. As such it should not be directly associated with the 'planes of composition' used elsewhere in Deleuze and Guattari's corpus.
2. This is explicit in 'November 20, 1923: Postulates of Linguistics'. In 'Conclusion: Concrete Rules and Abstract Machines' it is less explicit. But one can identify this link owing to the subsequent reference to the development of the assemblage into a Regime of Signs. As noted in '10,000 B.C.: The Geology of Morals (Who Does the Earth Think It Is?)', such signs are only relevant to the third, linguistic stratum (ibid. 65).

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